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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,894	03/19/2004	Edward P. Browne	PO-8155/MD-04-18	8194
157	7590	11/21/2006	EXAMINER	
BAYER MATERIAL SCIENCE LLC			FEELY, MICHAEL J	
100 BAYER ROAD			ART UNIT	PAPER NUMBER
PITTSBURGH, PA 15205			1712	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/804,894

**Applicant(s)**

BROWNE, EDWARD P.

**Examiner**

Michael J. Feely

**Art Unit**

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16,18-31,33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16,18-31,33 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Pending Claims*

Claims 1-16, 18-31, 33, and 34 are pending.

### *Previous Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. The rejection of claim 17 under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al. (US Pat. No. 6,077,978) has been rendered moot by the cancellation of these claims.
4. The rejection of claims 1-16, 18, 19, 33 and 34 under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al. (US Pat. No. 6,077,978) is maintained.

Regarding claims 1-16, 18, and 19, McDaniel et al. disclose an almost identical process to claim (1) (Abstract; column 6, lines 48-58); wherein the starters of claims (2-4) are used (column 5, lines 25-39; column 7, lines 7-20); wherein the acids of claims (5-7) are used (column

Art Unit: 1712

6, lines 3-23); wherein the continuous reactor/conditions of claims (10-13) are used (column 7, lines 21-55); wherein the catalyst of claim (14) is used (Examples); wherein the alkylene oxide of claims (15-16) are used (Examples); wherein the approximate molecular weight range of claim (1) is produced (Examples); (18) wherein the process is continuous (column 7, lines 21-55); and (19) wherein the process is semi-batch (column 7, lines 21-55).

The teachings of McDaniel are deficient in that they fail to explicitly disclose the use of: (1) greater than about 100 ppm of acid; (8) greater than about 100 ppm to about 2,000 ppm of acid; and (9) about 200 ppm to about 300 ppm of acid, all based on the weight of the starter. McDaniel discloses, “*In general*, less than 100 ppm acid based on total low molecular weight starter need to be added,” (column 6, lines 55-58).

McDaniel et al. establish that this concentration is a result-effective variable, wherein a minimum is required to prevent de-activation of the DMC catalyst (column 5, lines 3-24). Their *general* teaching of less than 100 ppm is open to possible ranges above 100 ppm. Furthermore, applicant fails to show criticality for the lower end-points of the claimed ranges.

In light of this, it has been found that, “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation,” – *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); and, “A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation,” – *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Art Unit: 1712

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the acid concentration in the process of McDaniel et al. because McDaniel et al. establish that this concentration is a result-effective variable, wherein a minimum is required to prevent de-activation of the DMC catalyst. Furthermore, applicant fails to demonstrate criticality for the claimed ranges.

Further with respect to the range of claim (1), the claimed range of greater than *about* 100 ppm potentially overlaps or touches the disclosed range of less than 100 ppm because *about* 100 ppm includes values below 100 ppm. Even if these ranges do not touch or overlap, it has been found that a *prima facie* case of obviousness exists where, "the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties," – *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

In addition, it should be noted that if these obvious amounts of acid were used in the process of McDaniel et al. one of ordinary skill in the art would have expected to yield the same molecular weight ranges set forth in claim (1) (*of about 260 Da to about 2,500 Da*). The use of these obvious amounts would yield the same or an obvious process of the one set forth in the claims. This same or obvious process would be expected to inherently produce the same or obvious results.

Art Unit: 1712

Regarding claims 33 and 34, the teachings of McDaniel et al. are as set forth above and incorporated herein to satisfy the limitations of claims 33 and 34.

***Previous Claim Rejections - 35 USC § 102/103***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The rejection of claim 32 has been rendered moot by the cancellation of claim 32.

7. The rejection of claims 20-31 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McDaniel et al. (US Pat. No. 6,077,978) is maintained.

Regarding claims 20-31, the teachings of McDaniel et al. are as set forth above and incorporated herein. It should be noted that claims 20-31 are product-by-process claims. It has been found that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process,” – *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

In light of this, the product of McDaniel et al. appears to be the same or an obvious product of the product set forth in the instant claims, so long as enough acid is supplied to

Art Unit: 1712

prevent catalyst deactivation. By doing so, the product is produced without increasing the amount of high molecular weight tail or increasing polydispersity (*see column 5, lines 3-9*).

In addition, it should be noted that if these obvious amounts of acid were used in the process of McDaniel et al. one of ordinary skill in the art would have expected to yield the same molecular weight ranges set forth in claim (20) (*of about 260 Da to about 2,500 Da*). The use of these obvious amounts would yield the same or an obvious process of the one set forth in the claims. This same or obvious process would be expected to inherently produce the same or obvious results.

***New Claim Rejections - 35 USC § 102/103***

8. Claims 1-10, 13-16, 18-31, 33, and 34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over O'Connor et al (US Pat. No. 6,359,101).

Regarding claims 1, 5-10, 13-16, 18, and 19, O'Connor et al. disclose: (1) a process for the polyoxyalkylation of a starter (Abstract; column 1, lines 5-18), comprising:

(a) establishing oxyalkylation conditions in an oxyalkylation reactor in the presence of a DMC catalyst (Abstract; column 14, line 15 through column 15, line 62; Examples);

(b) continuously introducing into the reactor at least one alkylene oxide and a low molecular weight starter (Abstract; column 3, line 58 through column 6, line 2) acidified with at least one of an inorganic protic mineral acid and an organic acid, wherein the acid comprises greater than about 100 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); (5) wherein the acid is chosen from *see claim for list* (column 10, lines 57-64;

Art Unit: 1712

Examples); (6) wherein the acid is chosen from *see claim for list* (column 10, lines 57-64; Examples); (7) wherein the acid is phosphoric acid (column 10, lines 57-64; Examples); (8) wherein the acid comprises greater than about 100 ppm to about 2,000 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); (9) wherein the acid comprises about 200 ppm to about 300 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); (10) wherein the reactor is a continuous reactor (column 14, line 15 through column 15, line 62); (13) wherein the continuous reactor comprises a back-mixed reactor (column 14, line 15 through column 15, line 62); (14) wherein the DMC catalyst is zinc hexacyanocobaltate (column 12, line 43 through column 13, line 30 – *see referenced documents in this passage*); (15) wherein the alkylene oxide is *see claim for list* (Abstract; column 3, line 58 through column 6, line 2; Examples); (16) wherein the alkylene oxide is propylene oxide (Abstract; column 3, line 58 through column 6, line 2); (18) wherein the process is continuous (column 14, line 15 through column 15, line 62); and (19) wherein the process is semi-batch (column 14, line 15 through column 15, line 62).

O'Connor et al. disclose, "These polyols can range in molecular weight from 300 to 30,000," (*see column 13, line 55 through column 14, line 14*); however, they do not explicitly disclose the claimed molecular weight range of about 260 Da to about 2,500 Da.

Firstly, it has been found that when a claimed range, "overlap(s) or lie(s) inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists – *see MPEP 2144.05*. Secondly, it should be noted that the O'Connor et al. reference satisfies all of the process limitations set forth in the instant claims. In light of this, one of ordinary skill in the art would

Art Unit: 1712

have expected to inherently produce the same or obvious results from the same or obvious process.

Therefore, the teachings of O'Connor et al. would have inherently or obviously satisfied the instant invention because they disclose the same process limitations set forth in the instant claims, wherein one of ordinary skill in the art would have expected to inherently produce the same or obvious results from the same or obvious process. Furthermore, they disclose a molecular weight range that overlaps the molecular weight range set forth in the instant claims.

Regarding claims 2-4, the starter materials set forth in the claims are recognized as non-preferred materials in O'Connor et al – *see column 10; lines 30-38; column 11, lines 44-55*. However, it has been found that, “The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain,” – *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). *See: MPEP 2123*.

Therefore, the limitations of claims 2-4 are obviously or inherently satisfied because O'Connor et al. consider these starter materials as non-preferred embodiments.

Regarding claims 20-31, 33, and 34, the teachings of O'Connor et al. are as set forth above and incorporated herein to satisfy the limitations of claims 20-31, 33, and 34.

#### ***New Claim Rejections - 35 USC § 103***

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al (US Pat. No. 6,359,101) in view of McDaniel et al. (US Pat. No. 6,077,978).

Art Unit: 1712

The teachings of both O'Connor et al. and McDaniel et al. are as set forth above and incorporated herein. The teachings of O'Connor et al. disclose a continuous reaction; however, they fail to explicitly disclose: *(11)* the use of a tubular reactor; and *(12)* the use of multi-point addition for introducing the reactants.

The analogous nature of these two references is readily established in light of the prior art rejections set forth above. In light of this, the teachings of McDaniel et al. establish that these limitations are recognized in the art as suitable reactors and feed techniques (*see column 7, lines 21-55*) for this type of continuous reaction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a tubular reactor and multi-point addition, as taught by McDaniel et al., in the process of O'Connor et al. because the teachings of McDaniel et al. establish that these limitations are recognized in the art at suitable reactors and feed techniques for this type of continuous reaction.

***New Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-16, 18-31, 33, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

All of the pending claims feature a molecular weight range of from about 260 Da to about 2,500 Da; however, it is not immediately clear if this range is describing a number average molecular weight or a weight average molecular weight.

***Response to Arguments***

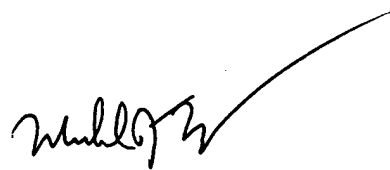
12. Applicant's arguments filed September 18, 2006 have been fully considered but they are not persuasive. Applicant's arguments with respect to the McDaniel et al. reference are addressed above in the modified (maintained) rejection. Furthermore, Applicant's arguments are moot in view of the new ground(s) of rejection – *see rejection(s) over O'Connor et al.*

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely  
Primary Examiner  
Art Unit 1712

November 17, 2006

**MICHAEL FEELY  
PRIMARY EXAMINER**